

# A rare case of tertiary syphilis complicated with aortic aneurysm in this era of early use of highly effective antibiotics

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### Abstract

This 35-year-old man presented with history of hemoptysis and breathlessness on exertion of 3 months duration. Examination revealed feeble left radial, brachial and carotid pulses. Chest radiograph showed a superior mediastinal mass and contrast enhanced computed tomography chest showed a large aortic arch with mass and compression effects. Endosonographic examination was suggestive of aortic aneurysm. During further evaluation, serum Venereal Disease Research Laboratory test was found to be positive in titers of 1:32. *Treponema pallidum* hemagglutination test was performed and showed positive titers of 1:64. Neurosyphilis was ruled out by normal cerebrospinal fluid examination findings. Patient was treated with injectable benzathine penicillin and aortic aneurysm repair was planned. The authors present a rare case of tertiary syphilis complicated with aortic aneurysm in this era of early use of highly effective antibiotics.

**Key words:** Aortic aneurysm, syphilis, tertiary

## INTRODUCTION

Approximately one third of untreated syphilis patients present with tertiary syphilis after a latent period ranging from 10-30 years.<sup>[1]</sup> Cardiovascular syphilis can manifest as aortic aneurysms, aortic regurgitation and coronary ostial stenosis.<sup>[2]</sup> Tertiary syphilis was the most common reported cause of thoracic aortic aneurysm in the pre-antibiotic era, contributing to 5-10% of cardiovascular deaths. However in the 21<sup>st</sup> century, it has virtually disappeared from the developing nations, though it is still rarely reported from the developing

countries.<sup>[3,4]</sup> There are no available incidence figures for cardiovascular syphilis in the past decade. We report a rare case of tertiary syphilis complicated with aortic aneurysm in this era of early use of highly effective antibiotics.

## CASE REPORT

A 35-year-old man, reformed smoker and occasional consumer of alcohol, presented with scanty hemoptysis and breathlessness on exertion of 3 months duration. There was no previous history of genital ulcer or skin rash. Patient gave history of multiple unprotected extramarital sexual exposures, the last episode being 8 years prior to onset of present complaints. He had two healthy children and his wife was also in good health.

Examination revealed a normal heart rate with feeble left radial, brachial and carotid pulses. Rest of the general and systemic examination was within normal limits. Dermatological and venereological examination

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#### DOI:

10.4103/0253-7184.132431

### How to cite this article:

Vasudevan B, Verma R, Pragasam V, Nema S. A rare case of tertiary syphilis complicated with aortic aneurysm in this era of early use of highly effective antibiotics. Indian J Sex Transm Dis 2014;35:46-8.

did not show features of primary, secondary or tertiary syphilis. Ocular examination was normal.

Investigations revealed normal hematological and biochemical parameters. Chest radiograph showed a superior mediastinal mass lesion and was reported as a likely aortic aneurysm [Figure 1]. Contrast enhanced computed tomography chest showed a large aortic arch with partially thrombosed saccular aneurysm causing significant mass effect on the adjacent structures and significant compression with right sided displacement and narrowing of trachea [Figure 2 and 3]. The narrowed left common carotid artery arising from aneurysmal wall was occluding the proximal left subclavian artery. Endosonographic examination suggested aneurysm of aortic arch with thrombosis. Bronchoscopy confirmed extrinsic compression of left side mid-trachea. Spirometry was suggestive of severe obstruction. Electrocardiogram and two-dimensional echocardiography studies were normal.

Serum Venereal Disease Research Laboratory (VDRL) was found to be positive in titers of 1:32. *Treponema pallidum* hemagglutination (TPHA) done for confirmation was also found to be positive in titers of 1:64. Enzyme linked immunosorbent assay for human immunodeficiency virus, hepatitis B surface antigen and anti-hepatitis C virus were negative. With a diagnosis of late latent syphilis, cerebrospinal fluid (CSF) examination was done. It revealed: 02 white blood cells/mm<sup>3</sup>, protein of 21 mg % and sugar of 53 mg %. CSF VDRL was negative, CSF TPHA was positive with a TPHA index of 23.5. Thus, neurosyphilis was ruled out.

Patient was treated with three doses of injectable benzathine penicillin 2.4 MU intramuscular (IM) weekly and definitive repair of aortic aneurysm was planned.

## DISCUSSION

Tertiary syphilis may develop in about one third of cases of untreated syphilis.<sup>[5]</sup> In the pre-penicillin era, it was calculated that cardiovascular syphilis was responsible for 10-15% of clinical syphilis.<sup>[6]</sup> In the present scenario with the early and widespread use of antibiotics, it is considered a very rare disease.<sup>[7]</sup>

Syphilitic aortitis is the most common manifestation of cardiovascular syphilis. It most commonly involves the ascending aorta. The commonest complication related to syphilitic aortitis is usually aortic regurgitation. Aneurysm formation is probably the least common among the complications of aortitis and is symptomatic in only 5-10% patients.<sup>[8]</sup> Majority of aneurysms are

single aneurysms while saccular aneurysms are more common than the fusiform. Involvement of ascending aorta is approximately seen in 50% of patients.<sup>[9]</sup>

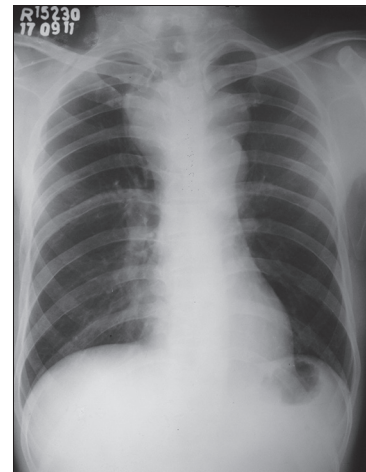


Figure 1: Chest X-ray posterior-anterior view showing superior mediastinal mass suggestive of aortic aneurysm

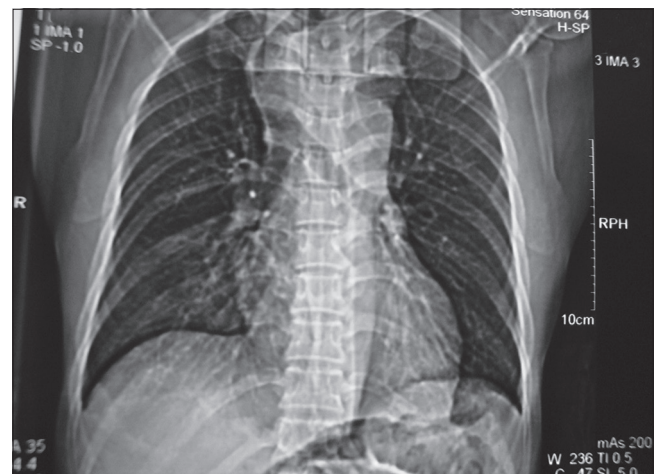


Figure 2: Computed tomography scan of chest showing gross deviation of trachea toward right side

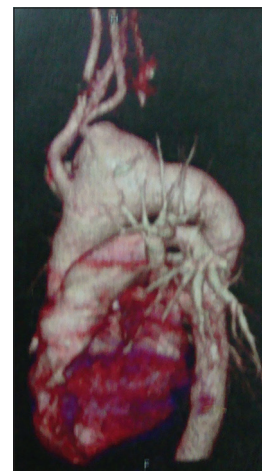


Figure 3: Three-dimensional reconstruction of computed tomography images showing aneurysm of arch of aorta

It is prudent to rule out neurosyphilis in all cases of cardiovascular syphilis as concomitant infection is found in 43% of cases.<sup>[10]</sup>

First line therapy for treatment of cardiovascular syphilis is benzathine penicillin 2.4 MU IM weekly on day 1, 8, and 15. Half of the solvent can be replaced by 1% lignocaine solution to reduce the discomfort. Alternatively procaine penicillin 600,000 IU IM daily for 17-21 days can be used. In case of penicillin allergy options include penicillin desensitization and treatment, doxycycline 200 mg daily for 21-28 days, Tetracycline 500 mg 4 times daily for 28 days and erythromycin 500 mg 4 times a day for 28 days.

This is a rare case of tertiary syphilis presenting as aortic aneurysm in this era of early use of highly effective antibiotics.

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**Source of Support:** Nil. **Conflict of Interest:** None declared.

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